Munitions Sites
at Air Force BRAC Installations

FACT SHEET

What are Military Munitions?

Military munitions refer to all ammunition products and components that contain explosives, propellants, or chemical agents used by the armed forces for national defense and security.

There are numerous types of munitions including but not limited to:

- small arms ammunition
- grenades
- artillery rounds
- demolition charges
- pyrotechnics
- bulk explosives
- chemical munitions
- bombs and warheads

Small arms ammunition

Grenade fuze and detonator

As a result of decades of use, many Department of Defense (DoD) properties have sites that contain unexploded ordnance (UXO), discarded military munitions, and munitions constituents or residue. The primary concerns at munitions sites are explosive hazards and exposure to residue remaining from munitions disposal.

> Discarded military munitions refers to munitions that have been abandoned without proper disposal. Unexploded ordnance refers to military munitions that have been primed, fused, launched, and remain unexploded either by malfunction or other cause. Munitions constituents refers to contaminants originating from military munitions.

Military Munitions Response Program (MMRP)

DoD is implementing a new program called the Military Munitions Response Program (MMRP) to address human health, environmental, and safety concerns related to military munitions and munitions constituents. It is a new funding program designed to address inactive munitions sites or ranges identified after September 30, 2000 that are **not** already being addressed under other DoD environmental programs such as the Installation Restoration Program (IRP). The MMRP does not apply to operational ranges or munitions storage/management facilities.

DoD first introduced the MMRP in the Fiscal Year (FY) 2001 Annual Report to Congress. In December 2001, due to increased public interest and safety concerns about abandoned or transferred munitions sites, Congress reinforced DoD's initiative and established reporting requirements in the FY 2002 National Defense Authorization Act. Sections 311-313 of this Act direct DoD to:

- Develop and maintain an inventory of defense sites that require a munitions response
- Establish a new program to specifically address munitions
- Develop a site prioritization protocol to apply to munitions response efforts
- Report progress in the Defense Environmental Response Program Annual Report to Congress on the remediation plans, costs, and technologies used in conducting munitions responses.

The initial inventory of sites designated for the Military Munitions Response Program was reported in the FY 02 Annual Report to Congress and available for public review on May 31, 2003. (http://63.88.245.60/derparc_fy02/derp/index.htm)

What is BRAC?

Base Realignment and Closure is a DoD program that was established to close and realign military installations authorized by Congress. There have been four rounds of base closures in 1988, 1991, 1993, and 1995. The first base realignment and closure (BRAC) round was conducted in 1988 based on recommendations by the Defense Secretary's Commission on Base Realignment and Closure. Congress enacted the Defense Base Closure and Realignment Act of 1990 to authorize base closure rounds in 1991, 1993, and 1995.

A goal within the BRAC program is to conduct environmental restoration as efficiently as possible to expedite transfer of property for reuse by the community.

What is the Air Force doing at BRAC installations?

While the Air Force has not closed any of its large ranges under BRAC, there are some sites on former Air Force installations where military munitions were used or disposed. In October 2002, AFRPA initiated a site inventory and verification process that has involved:

PHASE 1: Developing an initial inventory of munitions-related & MMRP sites
PHASE 2: Verifying the adequacy of the response actions taken at the munitions sites
PHASE 3: Assessing whether additional, unidentified, military munitions sites exist

PHASE 1: Munitions Sites Inventory

The PHASE 1 munitions sites inventory was completed in January 2003 for all Air Force BRAC property including parcels under long-term lease and already transferred by deed. Approximately 130 munitions sites were identified where munitions were once used or disposed. This inventory list was compiled using a variety of sources including:

- A survey conducted by the Air Force in the Fall of 2000 & 2003
- Basewide Environmental Baseline Surveys
- AFRPA's Management Information System
- AFRPA's Administrative Record on line
- AFRPA's Environmental Records (ER) on CD
- AFRPA briefings and data calls
- Program Documents
- Peer Review Briefings

All of the munitions sites that were identified are either already undergoing cleanup under the Installation Restoration Program, have completed response actions, or have been characterized under another compliance regulatory regime and deemed to require no further action. Since these munitions sites have been addressed or are being cleaned up using other funding sources, no Air Force BRAC locations were reported in the MMRP inventory in the FY02 Annual Report to Congress.

PHASE 2: Verifying Munitions Response Actions

All of the Air Force BRAC munitions sites are being reviewed by a team of independent explosives safety experts and environmental scientists to ensure that the response actions taken at each site are adequate for the intended land use. For explosives safety, the independent team is reviewing archive search reports, munitions response work plans submitted to the Department of Defense Explosives Safety Board, and final clearance reports or certificates. For munitions constituents, the independent team of environmental scientists is reviewing sampling plans, reports on the response actions, documentation indicating regulatory concurrence with no further action required, land use restrictions required, and proposed land use. The final report for the known munitions sites will be complete by December 2003.

Types of Munitions Sites at Air Force BRAC sites

Six types of munitions sites were identified at 26 of the 32 Air Force BRAC locations during this screening. The following is a description of each type of munitions site and the associated risks that are being or have been addressed at each.

Typical munitions removal action

Typical environmental sampling effort

Small Arms/Skeet Ranges

The most common types of munitions sites found at Air Force BRAC locations are small arms and skeet ranges (approximately 50%). Small arms ammunition typically contains a projectile or bullet less than 20mm that has been shot from ground combat arms such as rifles and pistols. Small arms ranges typically had practice targets placed in front of berms. The biggest risk at a small arms range is lead contamination in the soil around the berm. Excessive exposure to lead from inhalation or ingestion can cause damage to the nervous system, kidneys, and reproductive system.

Skeet Range Training

Skeet ranges were used for training and recreational activity. Shotguns were used to break small moving clay targets that were projected into the air from one or more launching points. The ammunition used at skeet ranges most often were 12 gauge shells with a number 8 lead shot. Shotgun shells are considered to be in the Small Arms Ammunition category. Skeet ranges do not usually have berms because the range of a shotgun is relatively short at about 40 yards. The principal contaminant of concern at a skeet range is lead on the surface and in the soil leaching from the shot. At small arms and skeet ranges, lead contamination has been or is being addressed under the Installation Restoration Program.

Grenade Ranges

Grenade ranges were primarily used for training security forces to fire 40mm grenades from handheld guns similar to a shotgun or a device mounted under a rifle. The grenades used at ranges were usually inert (non-explosively configured) containing a marking dye. However, it is possible that ammunition containing energetic or explosive material could have been used at these ranges and therefore sampling efforts for these residues is common. Grenade ranges made up approximately 10% of the munitions sites identified in the initial site inventory.

Firing-In Abutments

Firing-in abutments were berms or structures typically used by Air Force pilots to align and test guns prior to take off and to clear their chambers upon landing. The most common type of munitions expended in firing-in abutments was 20mm rounds. As a result, the most likely contaminant at these sites is lead in the soil resulting from the steel or copper jacketed projectile. Firing-in abutments made up approximately 10% of the munitions sites identified in the initial screening.

Explosive Ordnance Disposal (EOD) Ranges

EOD ranges are defense sites where EOD personnel conducted activities such as training, proficiency work, and disposal operations. Because the category is fairly broad, sampling efforts at EOD ranges are often conducted for a wide range of munitions and constituents (chemical residues). These efforts are undertaken to prevent explosive hazards, eliminate potential human health or environmental exposure, and to render the land safe for transfer. EOD ranges made up approximately 10% of the munitions sites identified in the initial screening.

Open Burn/Open Detonation (OB/OD) Areas

OB/OD areas were used for disposal of obsolete military munitions, including propellants (components used to launch munitions), energetics (explosives), and firework-type materials referred to as pyrotechnics (PEP). PEP and munitions were usually destroyed when they became excess, obsolete, or unserviceable. For open detonations, munitions were placed in a pit with a donor charge or ignition source such as TNT, detonated and then covered over with soil. Open burning of the propellants normally occurred either on the ground, on concrete slabs, or later in steel burn pans. The propellant was usually spread evenly across the area and then ignited. The use of OB/OD areas is now limited by the USEPA. The primary safety concerns at these type of munitions sites is the explosive hazard associated with buried munitions and potential exposure to contaminants associated with the donors used, the munitions constituents, and the propellant burned. Approximately 10% of the munitions sites identified during the initial screening were OB/OD areas.

TNT found in open burn/ open detonation area

Removal of TNT and affected soil

Burial Sites/ Munitions Disposal Areas

Burial sites made up approximately 10% of the munitions sites identified in the initial site inventory. These disposal areas contain waste from a variety of munitions from small caliber to bombs. In some cases, the Air Force would use an accelerant such as diesel fuel to detonate the munitions to render them safe prior to covering them over with soil. Typical contaminants that are tested for in these areas are energetics and diesel fuel constituents. The primary concerns with energetics are explosive hazards and potential human exposure and environmental hazards associated with the residue seeping into the groundwater. Health effects from drinking or breathing in fuel oils may include nausea or damage to the nervous system.

Removal activities at burial site

Points of Contact for Additional Information

About AFRPA

The Air Force Real Property Agency (AFRPA), formerly known as the Air Force Base Conversion Agency, executes environmental programs and property conversion efforts for Air Force bases being closed or realigned under BRAC. AFRPA is also responsible for the acquisition and disposal of all Air Force-controlled property worldwide. The agency has been assisting communities in converting closed or realigned Air Force bases from military to civilian use since 1991. (http://www.afrpa.hq.af.mil)

What's Next?

AFRPA is expected to complete PHASE 2 - the review of the adequacy of response actions for the known munitions sites - in December 2003. This additional "due diligence" effort will include more records review and stakeholder involvement to ensure public safety. Some of the additional records that will be reviewed include: additional AFRPA records, Air Force Safety Center Munitions Records, National Archives, U.S. Army Corps of Engineers records, and Department of Defense Explosives Safety Board records. If the review team determines that any of the prior munitions response actions are insufficient, AFRPA will conduct the appropriate response actions under the Military Munitions Response Program. These responses efforts will be coordinated closely with the existing landowners and affected parties.

AFRPA will then initiate PHASE 3 to try to locate any other previously unidentified munitions sites to ensure that all munitions sites have been identified and addressed adequately. Phase 3 is expected to be complete in 2004. This will be the final step in the munitions site inventory and screening process.

Public Involvement

AFRPA is committed to ensuring that all Air Force BRAC property is safe for transfer and that all response actions are protective of human health and the environment. The Air Force encourages community involvement in its cleanup efforts. Restoration Advisory Boards that include representatives of state and local governments and community members, meet to discuss community views on environmental restoration. The meetings are open to the public. AFRPA is committed to informing and involving the public in this process and will actively communicate its findings, plans, and accomplishments to the public. Information on this effort will be available for public review in January 2004 in the information repositories/administrative records that are maintained at your local library. If you have additional questions, please contact the BRAC Environmental Coordinator at your local AFRPA operating location.